

ways to properly position the connector **334** during installation of the battery **300** in the electronic device. In some embodiments, the coupling **336** can be or include a printed circuit board, flex board, or other circuit materials or cables that can allow electrical transmission as well as communication transmission to and from the connection module **330** or the battery **300** to electronic components in the electronic device.

[0037] FIG. 4 is a cross-sectional, partial top view of housing **310** and a connection terminal **432** that can be incorporated into the battery **300** of FIG. 3 according to some embodiments of the present invention. Connection terminal **432** can extend through housing **310** and be made of or include electrically conductive material. Connection terminal **432** can electrically couple the connection module to the rolled electrodes. Connection terminal **432** can transmit an electrical signal from the rolled electrodes to the connection module **330**. Spacers **440** can be placed on each side of housing **310** and extend circumferentially around connection terminal **432** through the housing **310**. For example, a first spacer **440A** can be positioned between the connection terminal **432** and the exterior of the housing **310** and a second spacer **440B** can be positioned on the interior of the housing **310**. Spacers **440** can be or include non-conductive material for electrically isolating connection terminal **432** from housing **310**. For example, spacers **440** can be plastic, PerFluoroAlkoxy, or Polyfluoroethylenepropylene.

[0038] In some embodiments, connection terminal **432** can include connection bar **450** for electrically coupling connection terminal **432** to the rolled electrodes. The connection bar **450** can be positioned in the interior of and electrically isolated from housing **310**. In some embodiments, connection bar **450** can couple with a positive connector extending from the rolled electrodes. The positive connector can align and connect with the connection bar **450** when the rolled electrodes are placed in the housing **310**. Connection bar **450** can extend along a portion of the interior of the housing to provide an extended contact area for electrically coupling with the positive connector **322**. The positive connector **322** can be electrically coupled to the connection bar **450** when the battery **300** is placed into the cavity. The connection bar **450** and the positive connector **322** can be electrically coupled without needing precise alignment between the positive connector **322** and the connection bar **450**. Connection bar **450** can be or include electrically conductive material, for example, metal.

[0039] FIGS. 5A and 5B are cross sections of housing **510** and rolled electrodes **520** that can be incorporated into the battery **300** of FIG. 3 according to some embodiments of the present invention. Housing **510** can include base **514** extending into sidewall **516**. Rolled electrodes **520** can be positioned within housing **510** that can be sealed via flange **512**. The rolled electrodes **520** can include one or more anode layers **522**, one or more cathode layers **524**, and a separation layer **526**. The anode layer **522** and cathode layer **524** can be stacked and rolled into a design (e.g., a jelly roll, folded, prismatic, or any design incorporating multiple layers). In some embodiments, one or both of the anode layer **522** and cathode layer **524** can include a metal or a non-metal material, for example, a polymer or composite that can include conductive material. The anode layer **522** can be or include copper, stainless steel, or any other suitable metal, as well as non-metal material including a polymer. For

example, the anode layer **522** can be silicon, graphite, carbon, a tin alloy, lithium metal, a lithium-containing material, such as lithium titanium oxide (LTO), or other suitable materials that can form an anode layer **522** in a battery cell. The cathode layer **524** can be or include aluminum, stainless steel, or other suitable metals, as well as a non-metal material including a polymer. For example, the cathode layer **524** can be lithium metal oxide, such as lithium cobalt oxide, lithium manganese oxide, lithium nickel manganese cobalt oxide, lithium nickel cobalt aluminum oxide, lithium titanate, lithium iron phosphate, or other suitable materials that can form a cathode layer **524** in a battery cell. The separation layer **526** can be a polymer film or a material that may allow lithium ions to pass through the structure while not otherwise conducting electricity.

[0040] FIG. 5A shows housing **510** with a relatively vertical sidewall **516A** extending from base **514**. Flange **512** extends beyond sidewall **516A** allowing other components to be positioned against sidewall **516A** beneath flange **512**. For example, an electronic component with the same width as flange **512** can be positioned against sidewall **516A** without increasing the profile of battery **300**.

[0041] FIG. 5B shows housing **510** with a curved sidewall **516B**. The curved sidewall **516B** can allow for an increased size of the curved end of rolled electrodes **520** without increasing the overall profile of battery **300**. For example, curved sidewall **516B** can be curved to allow for the apex of the curve to extend to the end of flange **512**. The size of the rolled electrodes **520** can be increased to use the space made available by the curved sidewall **516B**. By increasing the size of the rolled electrodes **520**, the electrical potential of the battery **300** can be increased.

[0042] FIGS. 6A-6H are side views of simplified housings **600** that can be incorporated into the battery **300** of FIG. 3 according to some embodiments of the present invention. FIGS. 6A through 6E include housing **600** with a single connection point **610**. Housing **600** can be made from a single piece of material surrounding rolled electrodes. The single connection point **610** can connect the ends of the single piece of material to seal housing **600**. In some embodiments, the connection point **610** can include additional bends to aid in sealing the housing **600**. For example, the housing **600** can be overlapped or one end of the material can be folded to increase the area of connection point **610**.

[0043] FIGS. 6F through 6H include housing **600** with two connections points **610**. Housing **600** can be made from multiple pieces of material and sealed at the two connection points **610**. For example, a top piece and a bottom piece can be positioned around rolled electrodes and sealed at the two connection points **610**. In some embodiments, the connection points **610** can be positioned to avoid components in the electronic device or can be used as support or mounting points for electronic components. FIG. 6H includes a housing **600** with a top and a bottom. The top can include curved edges that curve upwards and connect to the bottom at two connection points **610**. The connection points **610** can be above the surface of the top of the housing **600** and can allow the top to swell upward without increasing the overall size of the battery **300**.

[0044] The connection points **610** can form a hermetic seal around the battery. The hermetic seal can prevent gases and liquid from escaping from the interior of housing **600**. The housing **600** and connection points **610** can prevent gases from escaping from the interior of the housing **600** and resist